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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/699,684 | 11/04/2003 | James W. Reichard II | | 2019 |

7590 05/20/2005
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EXAMINER

JOHNSON, VICKY A

ART UNIT PAPER NUMBER

3682

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/699,684 | REICHARD, JAMES W. | |
| | Examiner | Art Unit | |
| | Vicky A. Johnson | 3682 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

no

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milton (US 5,417,617) in view of Redmond (US 6,648,784).

Milton discloses a pulley for a pulley and belt transmission system, the belt (20) having grooves defined by a series of angled faces (see Fig 2), the faces having a groove pitch angle (inherent) comprising: a pulley face (see Fig 2); a plurality of teeth (26), having a plurality of pulley tips (see Fig 2), circumferentially around the pulley face (see Fig 2), defined by a series of angled walls (see Fig 3); and at least one surface gap (28) across the plurality of teeth (see Fig 2).

Milton does not disclose the walls having a pulley pitch angle less than the groove pitch angle of the belt.

Redmond teaches the use of a belt drive assembly having a pulley pitch angle less than the groove pitch angle of the corresponding belt (col. 2 lines 21-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmission system of Milton by making the pulley pitch angle less than the groove pitch angle of the belt in order to reduce noise (col. 1 lines 45-60).

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Re claims 2, 3, and 4, Milton discloses the claimed invention as described above, but does not disclose that the pulley pitch angle comprises from about one degree to about 10 degrees less than the groove pitch angle, or the pulley pitch angle comprises from about two degrees to about 8 degrees less than the groove pitch angle, or the pulley pitch angle comprises about five degrees less than the groove pitch angle.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the optimum range of the pulley pitch angle relative to the belt pitch angle, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Re claim 5, Milton shows the pulley tip comprise a flattened shape (see Fig 3).

Re claim 6, Milton shows the at least one surface gap (28) comprises a plurality of grooves, at an angle to the plurality of teeth, through the pulley face (see Figs 2 and 3).

Re claim 7, Milton discloses the claimed invention as described above, but does not disclose from about two to about twenty grooves through the pulley face.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the optimum range of the number of surface gap grooves, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

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Re claim 8, Milton shows two pulley sides (22, 24), the pulley face there between (see Fig 2) having at least one hole (44, 46) drilled through one of the pulley sides, the at least one hole positioned beneath the pulley face (see Fig 2).

Re claim 9, Milton shows a number of hole pairs (44, 46) drilled through the pulley sides about equal to the number of grooves through the pulley face (see Fig 3).

Re claim 10, Milton shows the hole pairs (44,46) comprise a position proximate to the grooves through the pulley face (see Fig 3).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


| | | |
|-----------|------------------|---------------------|
| 4,525,158 | Tanaka et al | (pulley) |
| 4,047,444 | Jeffery | (belt/pulley pitch) |
| 4,981,462 | White, Jr. et al | (pulley) |
| 6,488,604 | Birn | (surface gaps) |
| 6,099,427 | Brown | (surface gaps) |

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vicky A. Johnson whose telephone number is (571) 272-7106. The examiner can normally be reached on Monday-Friday (7:00a-3:30p).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Bucci can be reached on (571) 272-7099. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Vicky A. Johnson 5/18/05
Examiner
Art Unit 3682